

Recovery Plan Action Status

Plan Name: Illinois Cave Amphipod (*Gammarus acherondytes*) Recovery Plan

Plan Status: Final

Plan Date: 20-Sep-02

Lead Agency: USFWS

Lead Office: Rock Island Ecological Services Field Office

(309)
793-3800)

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Illinois cave amphipod (<i>Gammarus acherondytes</i>)	1	1.1.1	Encourage voluntary best management practices and land use protection plans through land owner contacts using incentives&From existing USDA tools such as EQUIP, CRP, Rural Development, and others, and promoting new programs specific to the Sinkhole Plains	Not Started			Taney County Soil and Water Conservation District, U.S. Fish and Wildlife Service, Division of Refuges, Private Lands, Natural Resources Conservation Service	Work type not yet selected	Labor type not yet selected	
Illinois cave amphipod (<i>Gammarus acherondytes</i>)	1	1.1.2	Encourage development of a board (Local Ecosystem Marketing Board) that works toward a strong coordinated marketing program highlighting the special needs of this area and its ecosystem, along with the Best Management Practices and preservation of agricultural lands.	Not Started			Taney County Soil and Water Conservation District, County, Private groups	Work type not yet selected	Labor type not yet selected	
Illinois cave amphipod (<i>Gammarus acherondytes</i>)	1	1.2.1.1	Bring new and existing sewage treatment facilities (public and private) standards protective of Karst groundwater.	Unknown			U.S. Environmental Protection Agency, Illinois Environmental Protection Agency, County, Private groups	Work type not yet selected	Labor type not yet selected	
Illinois cave amphipod (<i>Gammarus acherondytes</i>)	3	1.2.1.2	Provide cost share to demonstrate alternative, better systems.	Unknown			Illinois Environmental Protection Agency, County	Work type not yet selected	Labor type not yet selected	

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Illinois cave amphipod (Gammarus acherondytes)	2	1.2.1.3	Encourage development of a regional sewer district with a centralized sewage treatment system.	Not Started			Illinois Environmental Protection Agency, County	Work type not yet selected	Labor type not yet selected	
Illinois cave amphipod (Gammarus acherondytes)	3	1.2.2.1	Encourage adequate storm water control ordinances that deal with the unique features of a karst terrain are implemented and enforced.	Unknown			Illinois Environmental Protection Agency, County, Natural Resources Conservation Service	Work type not yet selected	Labor type not yet selected	
Illinois cave amphipod (Gammarus acherondytes)	2	1.2.2.2	Discourage inappropriate industry&FRom locating in karst topography	Unknown			Illinois Environmental Protection Agency, County	Work type not yet selected	Labor type not yet selected	
Illinois cave amphipod (Gammarus acherondytes)	2	1.2.3.1	Encourage enforcement of regulations pertaining to dumping of waste in sinkholes and other karst features. Implement a program to clean-up existing sinkholes.	Unknown			Illinois Environmental Protection Agency, County	Work type not yet selected	Labor type not yet selected	
Illinois cave amphipod (Gammarus acherondytes)	2	1.2.4.1	Encourage use of above-ground storage facilities in the Sinkhole Plain.	Ongoing Current	FY 2000 - FY 2004		Illinois Environmental Protection Agency, County	Work type not yet selected	Labor type not yet selected	
Illinois cave amphipod (Gammarus acherondytes)	2	1.2.4.2	Coordinate with response agencies to ensure that spills of toxic substances&FRom traffic accidents or other sources do not enter the groundwater system.	Not Started			U.S. Fish and Wildlife Service, Division of Environmental Quality, Illinois Environmental Protection Agency, County	Work type not yet selected	Labor type not yet selected	

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Illinois cave amphipod (Gammarus acherondytes)	1	1.2.5	Encourage development of residential land use plans and regulations which would prevent perturbations to lands and its groundwater system. Provide cost share to demonstrate alternative, better systems	Ongoing Current	FY 2000 - FY 2004		Illinois Environmental Protection Agency, County, Private groups	Work type not yet selected	Labor type not yet selected	
Illinois cave amphipod (Gammarus acherondytes)	2	1.3.1	Discourage publicizing names of specific caves, entrances, or entrance locations.	Ongoing Current	FY 2000 - FY 2004		All parties	Work type not yet selected	Labor type not yet selected	
Illinois cave amphipod (Gammarus acherondytes)	3	1.3.2	Monitor visitation trends in selected caves containing G. acherondytes.	Unknown			Illinois Department of Natural Resources	Work type not yet selected	Labor type not yet selected	every 5 years
Illinois cave amphipod (Gammarus acherondytes)	2	1.3.3	Reduce the potential impacts of visitation in Illinois Caverns.	Ongoing Current	FY 2000 - FY 2004		Illinois Department of Natural Resources	Work type not yet selected	Labor type not yet selected	
Illinois cave amphipod (Gammarus acherondytes)	1	1.3.4	Utilize measures to assist with controlling access to caves.	Ongoing Current	FY 2000 - FY 2004		Illinois Department of Natural Resources, Private groups	Work type not yet selected	Labor type not yet selected	
Illinois cave amphipod (Gammarus acherondytes)	3	1.3.5	All caves should be mapped by qualified cavers with suitable experience in mapping techniques.	Unknown			Illinois Department of Natural Resources, Private groups	Work type not yet selected	Labor type not yet selected	
Illinois cave amphipod (Gammarus acherondytes)	3	1.3.6	Researchers and cavers should be encouraged to locate new cave entrances.	Unknown			Illinois Department of Natural Resources, Private groups	Work type not yet selected	Labor type not yet selected	
Illinois cave amphipod (Gammarus acherondytes)	1	1.3.7	Delineate all sinkholes and surface recharge areas in the Columbia, Waterloo, and Renault Sub-regions of the Illinois Salem Plateau	Ongoing Current	FY 2000 - FY 2004		All parties	Work type not yet selected	Labor type not yet selected	

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Illinois cave amphipod (Gammarus acherondytes)	3	2.1.1	Assess the feasibility and suitability of restoring extirpated G. acherondytes populations to historical habitats.	Ongoing Current	FY 2010		U.S. Fish and Wildlife Service, Illinois Department of Natural Resources	Work type not yet selected	Labor type not yet selected	Captive propagation study being conducted by Dr. Frank Wilhelm.
Illinois cave amphipod (Gammarus acherondytes)	3	2.2.1	Reintroduce G. acherondytes into historical habitats if feasible.	Not Started			U.S. Fish and Wildlife Service, Illinois Department of Natural Resources	Work type not yet selected	Labor type not yet selected	

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Illinois cave amphipod (Gammarus acherondytes)	1	3.1.1	Conduct studies aimed at increasing understanding of the biology and ecology of G. acherondytes, including life history, behavior, and population level genetics.	Partially Complete	FY 2007		U.S. Fish and Wildlife Service, Illinois Department of Natural Resources	Research: Propagation	Graduate Student, Species Expert	<p>SIU will conduct proagation studies starting late FY07;</p> <p>Panno, S.V., K.C. Hackley, W.R. Kelly, H.H. Hwang, F.M. Wilhelm, S.J. Taylor, and B.J. Stiff. 2006. Potential effects of recurrent low oxygen conditions on the Illinois cave amphipod. Journal of Cave and Karst Studies 68:55-63</p> <p>Venarsky, M.P., F.M. Wilhelm, and F.E. Anderson. 2007. Conservation strategies supported by non-lethal life history sampling of the U.S. federally listed Illinois cave amphipod, Gammarus acherondytes. Journal of Crustacean Biology 27:202-211.</p> <p>Wilhelm, F.M., S.J. Taylor, and G.L. Adams. 2006. Comparison of routine metabolic rates of the stygobite, Gammarus acherondytes (Amphipoda: Gammaridae) and the stygophile, Gammarus troglophilus. Freshwater Biology 51:1162-1174.</p> <p>Venarsky, M.P., F.E. Anderson, and F.M. Wilhelm. 2008. Population genetic study of the U.S. federally listed Illinois cave amphipod, Gammarus</p>

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										acherondytes. Conservation Genetics 10:915-921.
Illinois cave amphipod (Gammarus acherondytes)	2	3.1.2	Assess potential adverse effects of contaminants and other water quality factors on Illinois cave amphipod	Partially Complete	FY 1995 - FY 1999	FY 2000 - FY 2004	U.S. Fish and Wildlife Service, Illinois Department of Natural Resources	Work type not yet selected	Labor type not yet selected	
Illinois cave amphipod (Gammarus acherondytes)	1	3.2.1	Conduct surveys to define the species range.	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Illinois Department of Natural Resources	Work type not yet selected	Labor type not yet selected	
Illinois cave amphipod (Gammarus acherondytes)	1	3.2.2	Delineate all groundwater basins within the range of G. acherondytes.	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Illinois Department of Natural Resources	Work type not yet selected	Contract	Tom Aley and Philip Moss, Ozark Underground Laboratory. Monroe County Recharge Area Delineations, June 2009. Delineation of the Antler-Annbrar Springs, Dual Spring, Luhr Spring, Frog Spring, Schnellbecher Spring, and Andy's Run Spring recharge areas.
Illinois cave amphipod (Gammarus acherondytes)	1	3.3.1	Quantitatively monitor population status of G. acherondytes.	Ongoing Current	FY 2007		U.S. Fish and Wildlife Service, Illinois Department of Natural Resources	Research: Population Surveys	Contract	Jerry Lewis developed monitoring protocol in 2000 and has conducted surveys in 2001, 2003, 2007, 2011.
Illinois cave amphipod (Gammarus acherondytes)	2	3.3.2	Monitor and evaluate trends in land use practices.	Not Started			U.S. Fish and Wildlife Service, Illinois Department of Natural Resources, Natural Resources Conservation Service	Work type not yet selected	Labor type not yet selected	every 5 years
Illinois cave amphipod (Gammarus acherondytes)	2	3.3.3	Monitor water quality both above ground and in shallow karst aquifers within the known range of G. acherondytes.	Not Started			U.S. Fish and Wildlife Service, Illinois Department of Natural Resources	Work type not yet selected	Labor type not yet selected	every 5 years

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Illinois cave amphipod (Gammarus acherondytes)	1	4.1	Hire a permanent full time karst resource coordinator, located in the Sinkhole Plain, to implement the education program and other outreach activities.	Not Started			Illinois Department of Natural Resources, County	Work type not yet selected	Labor type not yet selected	